DOCUMENT RESUME

ED 136 943 PS 009 189

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TITLE	Learning Techniques of Persuasion: An Analysis of Sequences of Interaction.
SPONS AGENCY	Ford Foundation, New York, N.Y.; Harry Frank Guggenheim Foundation, New York, N.Y.; National Inst. of Mental Health (DHEW), Rockville, Md.
PUB DATE	Mar 77
GRANT	NIMH-MH-01096
NOTE	26p.; Filmed from best available copy; Paper presented at the Biennial Meeting of the Society for Research in Child Development (New Orleans, Louisiana, March 17-20, 1977)
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	*Age Differences; Aggression; *Children; Early Childhood Education; *Foreign Countries; Interaction Process Analysis; Observation; *Peer Relationship; *Persuasive Discourse; Prosocial Behavior; Sex Differences; *Social Relations
IDENTIFIERS	*Kenya

ABSTRACT

This research describes the attempts of 24 male and 24 female Kikuyu children (aged 2-9 years) to persuade other Kikuyu children and adults to comply to their demands. Examined was the sequence of behaviors beginning when a child encountered a noncompliant response from a target, and continuing until the child either gained compliance or gave up the set. Data consists of naturalistic observations of sequences of social behavior collected and coded by trained Kenyan observers. A multivariate analysis for qualitative data was employed to analyze for differences in the duration, outcome, composition and complexity of each sequence of behaviors across age, sex, and dyadic context. Results show significant developmental effects on the duration and complexity of the sequences, in which younger children show greater rigidity and lability than do older children. Contextual effects were also significant, and indicate that children are more likely to escalate their behavior after receiving noncompliance from younger children and more likely to de-escalate their behavior after receiving noncompliance from older children. Sex differences were shown in the strategies children use to escalate their demands. Results suggest the need to employ sequential analyses to more adequately describe interactive processes. (Author/SB)

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LEARNING TECHNIQUES OF PERSUASION: AN ANALYSIS OF SEQUENCES OF INTERACTION

David Lubin

Beatrice B. Whiting

Abstract

This research describes how 24 male and 24 female Kikuyu children ages two through nine years attempt to persuade other Kikuyu children and adults to comply to their demands. This phenomena was empirically defined as the sequence of behaviors beginning when a child encountered a non-compliant response from a target, and continuing until the child either gained compliance or gave up the set. The data consists of naturalistic observations of social behavior collected and coded by trained Kenyan observers under the direction of Beatrice Whiting. A multivariate analysis for qualitative data was employed to analyze for differences in the duration, outcome, composition and complexity of each sequence of behaviors across age, sex, and dyadic context. The results show significant developmental effects on the duration and complexity of the sequences, where younger children show greater rigidity and lability than do older children. Contextual effects were also significant, and indicate that children are more likely to escalate their behavior after receiving non-compliance from younger children and more likely to de-escalate their behavior after receiving noncompliance from older children. Sex differences were also shown in the strategies children use to escalate their demands. The results suggest the need to employ sequential analyses to more adequately describe interactive processes.

LEARNING TECHNIQUES OF PERSUASION: AN ANALYSIS OF SEQUENCES OF INTERACTION

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The research we are presenting today is the next step in the analysis of social interaction of children initiated by Robert Sears at the Iowa Child Welfare Station and further developed in the Six Cultures study directed by Whiting, Child and Lambert. That analysis was but the simplest beginning in our explorations. It convinced us that to understand a child's patterns of social interaction it was necessary to have a profile of his behavior with a variety of other children and adults and a knowledge of the amount of time he spent with each of these classes of persons. There was a strong indication that experience in social interaction with various categories of others called for different types of behavior: infants elicited nurturant behavior from 3-10 year olds, adults elicited seeking behavior, children near of an age elicited rough and tumble play and varieties of mildly aggressive social interaction. Children practiced their newly acquired knowledge of the rules of etiquette and "good" behavior by advising their younger siblings how to act. Furthermore diadic interactions modelled on a three sequence--instigation, central act and effect act--type of analysis seemed too simple to do justice to the complexity of patterns of social interaction.

Our interest turned to the analysis of longer sequences, particularly those which were responses to events which we assumed to be universal instigations (see Field Guide for the Study of Socialization, Whiting, et al, 1966 for discussion of these instigations).

This research was supported by grants from the Ford Foundation, The National Institute of Mental Health MH01096, and the Harry Guggenheim Foundation.

Presented at the Biennial Meetings of the Society for Research in Child Development, New Orleans, LA, March 20, 1977.

In particular our interest has turned to an attempt to understand a child's cognitive development as manifest in his patterns of social interaction and his strategies for influencing others in an attempt to achieve his desired goal. Most tests of the cognitive development of children are based on an assessment of a child's ability to manipulate material objects and understand physical principles. Many of these tests are culture bound and may not be valid instruments for assessing the cognitive development of Third World children, or for that matter children in some segments of our own society. The appraisal of cognitive ability based on strategies of effecting human beings seemed an important area for exploration.

Our observations of social interaction suggested that a child's relationship with both adults and children shows an increased variety with age, that the relation to specific individuals becomes more articulated with respect to goals pursued and the behavioral means of reaching these goals. Our aim was to develop an instrument for assessing these abilities.

Development has in part been characterized as that process by which undifferentiated cognitions and behaviors become differentiated as the child grows older, combining and branching out to form new types of actions on the environment (Piaget, 1953; Werner, 1948). However, the concern of cognitive psychologists has not only been the description of the increasing variety of actions an individual is capable of performing, but also with the organization of those behaviors into sequences or strategies--plans of action. We assume, in accordance with Bruner's formulations (1971) that a child's behavior is goal oriented, and regulated by feedback from action-outcome linkages, where the organization of behavior can be described by an analysis of the relations between a sequence of acts. Such an analysis highlights the growing child's ability to create, dissemble, reorganize, and integrate new and more complex

strategies oriented toward some goal.

Our analysis of social interaction is transactional. An actor is judged to attempt to change the behavior of another, ie. mand another. It is assumed that the individual who mands has an intention (goal) and that his intentions may be classified according to the type of response he seeks to elicit from the alter (target). It is further assumed that a mand involves an exchange of resources and that the beneficiary of the exchange may be the mander himself (ego) or the target (alter) or some other target or group of whom the actor and the target are members.

Our analysis of manding behavior is modelled on the grammatical structure of a sentence and paragraph[1]: An actor is judged to seek from or offer some resource to an alter who accepts, refuses, ignores, etc. the behavior. This unit is comparable to a sentence and has adverbial clauses defining when, where, the activity in progress and the cast of characters present when the transaction takes place. These transactional sentences form sequences comparable to a paragraph.

It is not possible to detail our methods for observing and coding behavior in the time allotted for this presentation. In brief our coding system recognizes five major types of mands: dependent, dominant, prosocial, nurturant, sociable, with subcategories listing the types of goods exchanged. Thus, for example, one can seek comfort, food, information, privileges, etc. (ego dependent mands) or offer these same goods (nurturant behavior) or demand them (dominant behavior). The system, therefore, calls for

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[1]The original work and the collaboration of Richard Longabaugh have been essential for the simplification and clarification of the original Six Culture analytic system. (See Longabaugh, 1963)

judgements of the intention of the child being observed and the goods that are being sought or offered.

All the observations used in this analysis were made in the homesteads in a Kikuyu village 20 miles north of Nairobi. The observations were made by Kikuyu university students and recorded in running English sentences. They were coded by the observer on leaving the field and checked by the senior investigator. Since the transcultural code requires a judgement of intent the observer must be a member of the same culture as the child being observed and understand the symbolic and metaphoric systems of the society. These include the spoken language with all the nuances of style as well as gestures, postures and facial expressions. It is assumed that a normal individual learns the language of social interaction as he matures and is socialized into his native group. Social interaction would be impossible if such a shared language did not exist and if a person could not judge the intention of another with a reasonably high degree of accuracy. The transcultural code does not detail the cues which an observer uses to judge intentionality. Our observers were trained to translate into the code, using operational definitions of the coding categories arrived at after extensive ethnoscientific interviews (cf. Tyler 1969). The Kenyan observers learned the code with great rapidity and proved to have an excellent memory for the details of social interaction. Their superiority to U.S. observers I have tried to train may in part reflect their greater naive knowledge of social psychology, their awareness of environmental influences on human behavior, a sophistication which can be explained by their experience as child nurses in large polygynous and extended homesteads where, until the recent introduction of schools, daily interactions were with children of various ages and numerous adults, as well as parents.

The Kenyan observers were paired until their written descriptions of social behavior agreed 80% as to the number of codable units observed during the 30 minute period and 80% as to the coding of these units into mand categories (Disagreements which fell within the same major mand category, ie. nurturance, ego-dependent, ego-dominant, pro-social and sociable, were computed as ½ agreement.). The transactional sentences were entered on IBM tape in the order of their occurence. For the purpose of this study a sequence was defined as beginning when a child encountered a non-compliant response from a target and continued until the child either gained compliance or no longer manded a target. In coding sequences the child's age, sex and status in relation to the target person (persons) was identified, as well as the category of acts in their temporal order of occurence.

The sequences we have chosen to analyze are the responses of 24 Kikuyu girls and 24 boys 3-9 years of age to non-compliance. Non-compliance is defined as the refusal of a target to respond positively to the child's mand. As a result of the frustration arising from this refusal the child may take one of a variety of actions. For example, he may give up the set, repeat the same behavior (remand), ask a third party to intercede, or alter his strategy of manding. In the sequence analysis changes in the type of mand, the style of manding, and even the target of the mand may be seen as part of a sequence unit, a series of interactions with similar intent, that of persuading a target or targets to meet the child's desires. It was hoped that increases in the complexity of the child's strategies in terms of sequence length, style and sensitivity to the sex and age of the target would prove to be a promising area for exploring a child's ability to successfully organize his behavior to attain desired

goals. It was also hoped that such increasing organization of behavior would reflect changes in the child's adaptation to the social environment.

The sequence code records information relevant to the duration, outcome, composition, and complexity of the subject's behavior for sequences of 1 to 7 interacts in length. Duration refers to both the number of mands made by the subject in response to continued non-compliance from the target(s), as well as the subject's ability to return to the set after distraction or interruption. Outcome refers to one of the sixteen terminating conditions for the sequence, e.g. success, failure, adult intervention, distraction, etc. Composition is defined by the constellation of mands following the initial mand in the sequence which serves to identify it as one of a variety of sequence patterns. Lastly, the complexity of the sequence refers to the number of transformations within the sequence (i.e. changes in mand, style, or target from the immediately preceeding act, and/or alternations of targets, mands, and/or styles).

The data was analyzed by multivariate analysis for qualitative data (MULTIQUAL), developed by R.D. Bok and George Yates (1973). These methods utilize long linear models for multinomial probabilities, and provide statistical test of main and interaction effects for complex contingency tables and other forms of qualitative data.

This analysis tests the goodness of fit between observed social behavior sequences and the theoretically expected patterns of behavior. The log linear program (MULTIQUAL) generates these theoretically expected contingencies based on main or interaction effects for parameters entered by the experimenter. The degree to which the observed sequences match the computer generated model constitutes the goodness of fit. Probabilities equal to or greater than the .05 level are thought to represent a good fit.

In the course of our analysis hypotheses related to three topic areas have been explored: developmental issues, the effects of context on behavior, and sex differences in children's behavioral strategies. We shall present a sample of our results in each of these areas.

The first dimension of our analysis examines differences in the structure of children's behavior sequences attributable to development. We found one useful measure of this type of change to be rigidity and flexibility in organization. This type of change was investigated by comparing one aspect of the structure of behavior sequences across ages in the sample. Rigidity is here defined as the stereotypical repetition of behavior (including target) across consecutive acts within a sequence. In contrast, flexibility is defined as change in the behavior (and/or target) across consecutive acts. Since rigidity consists of perseveratively repeating acts which have met with non-compliance, while flexibility reflects a child's variation of behavior in response to the failure to gain compliance, it was assumed that the former strategy would decrease and the latter increase as a function of age.

Slide 1 depicts such a relationship. While some 225 or 83% of the 270 consecutive acts of 2-3 year olds show rigidity, only 44% of the 253 pairs of consecutive acts of 4-6 year olds, and 19% of the 378 pairs of consecutive acts of 7-9 year olds show rigidity. Flexibility is, of course, inversely related to rigidity. Only when we test a multinomial model positing an interaction between age and rigidity-flexibility do we find a significant goodness of fit as is shown in Slide 2.

A second important measure of developmental change was found to be the stability or lability of the child's behavior. For our purposes stability was operationalized as the returning to a set (or goal) after

a distraction or interruption by a third party, and lability was defined as the failure of the subject to return to the set (goal) after a similar distraction. Again, the expectation was that with increasing age the child's sequences would show increasing stability. Slide three once again confirms this relationship, as can be seen lability declines rapidly with age, while stability increases. Slide four indicates that only when we test a multinomial model positing an interaction between the actor's age and stability-lability do we find a significant goodness of fit.

The second research interest concerns the effect of the context in which behavior occurs upon its organization.* We examined one important aspect of the context, that being the relative ages of the actor and target of an interaction. As slide 5 indicates after non-compliance from higher status/ older targets an actor would typically either remand that older target and de-escalate his/her behavior (that is shift from a dominant mand to a dependent or sociable mand), or change the target of his/her behavior to a lower status/younger child and simultaneously escalate his behavior (that is shift from sociable, dependent, and/or nuturant mand(s) to dominant, prosocial, and/or aggressive forms of manding).

This finding is in keeping with the Freudian theory of displacement which holds that when a dominant or aggressive sequence is frustrated or inhibited, the aggression tends to occur toward some person other than the frustrator.

As slide six shows, non-compliance from lower status targets typically results in escalation of behavior provided the actor continues to mand the lower status target. If, however, the actor changes the target of his next mand to one of higher status the actor's successive behaviors typically evidence de-escalation.

* SINCE NO SIGNIFICANT SEX DIFFERENCES WERE FOUND WITH RESPECT TO CONTEXTUAL EFFECTS, FOR BREVITY ONLY DATA ON MALES IS PRESENTED.

The following two slides reveal the statistical relationship between status of target (dyadic context) and the patterns of escalation and de-escalation in sequences involving repeated mands to the same target, and changes in the target of the child's mands, respectively.

Slide 7 confirms the salience of the relative status of the target on the pattern of behavior in sequences with repeated mands to the same target. The orthogonal contrast of higher status targets and patterns of de-escalation, with lower status targets and patterns of escalation, produces a strongly significant goodness of fit to our data.

Slide 8 further shows the significant interaction between type of target change and the sequence pattern, where changing from a higher status to lower status and escalating behavior is contrasted with changing from a lower to a higher status target and de-escalating behavior. Once again the goodness of fit of this model to our data is strongly significant.

The ability of children in our sample across ages to recognize the contingencies of various dyadic contexts emphasizes the power of such variables to "specify" the organization of the child's behavior.

A third area of interest involves sex differences in the strategies children use to effect desired changes in another's behavior. One finding of sex differences we wish to present today concerns the strategies children used to make the escalations discussed above. Slide 9 depicts the tendencies of males and females in the sample to use three alternative strategies for escalating behavior: 1) pro-social behaviors which refer to the invocation of social rules or threatening to and/or calling for adult intervention by reporting deviation in order to gain control of a target's behavior; 2) dominant [redacted] behaviors such as seeking to insult, annoy or compete with a target; 3) aggressive behaviors, that is dominance seeking through the use of direct physical

force or the threat of physical force. As can be seen, females show a marked tendency to utilize pro-social strategies to effect escalation in comparison to male, while males tend to escalate using aggressive behavior in comparison to females. Slide 10 confirms this interaction between sex and behavioral strategy involving pro-social and aggressive behaviors.

Overall, the reserach on the development of techniques of persuasion reflects in the child's social interaction his (her) growing cognitive abilities. That the child's organization of responses shows an increasing flexibility and stability with age, and that the child's strategies become more "specified" or differentiated in given dyadic contexts can be seen as evidence traditionally associated with development. By utilizing methods for sequential analysis which more fully respect the assumption that behavior is regulated and organized, it is hoped that future research on social interaction can further our understanding of developmental and cultural differences in the patterns of social behavior.

FIGURE 8

RIGIDITY AND FLEXIBILITY ACROSS CONSECUTIVE ACTS

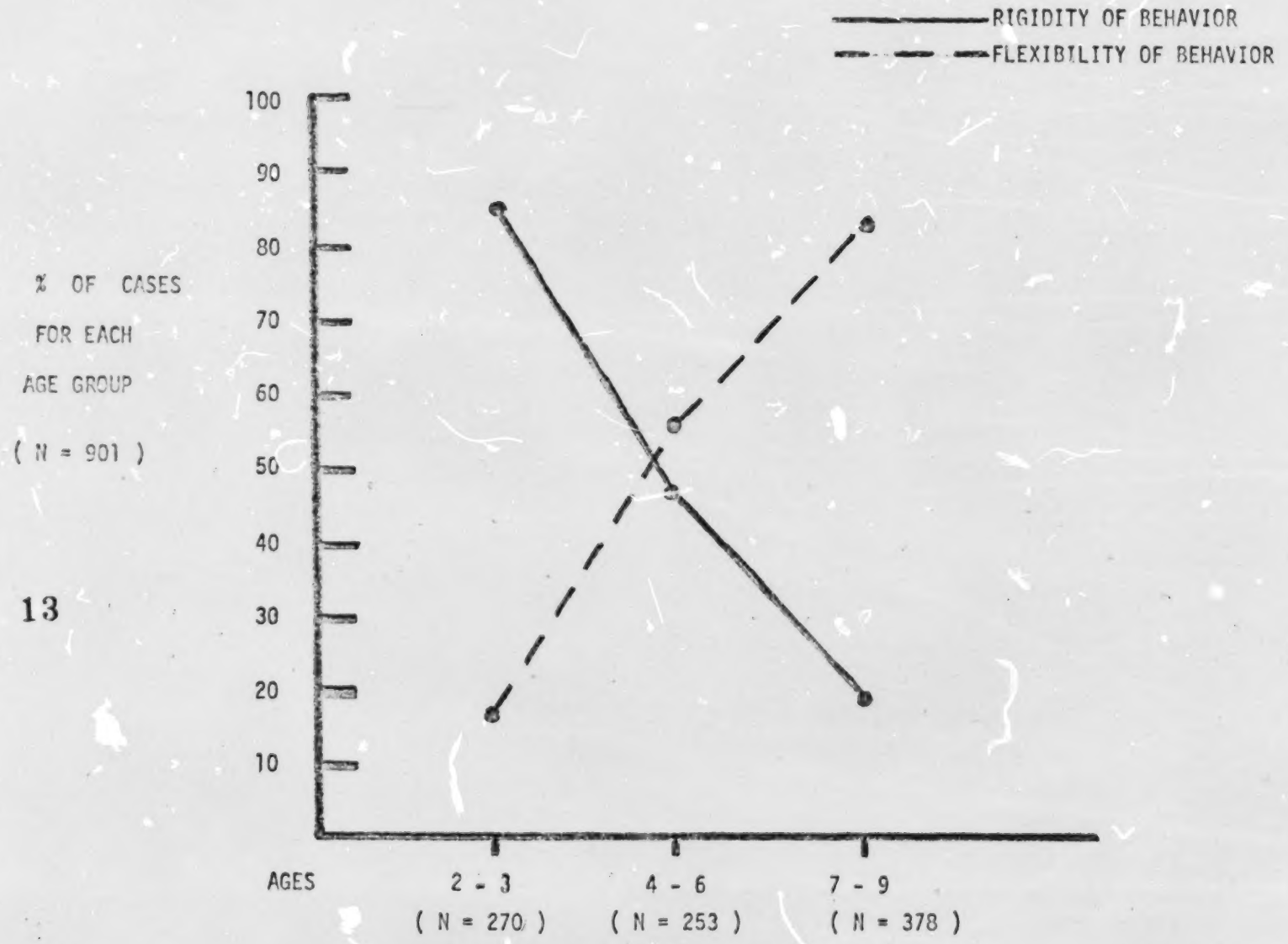

TABLE 6

TEST OF GOODNESS OF FIT
OF MULTINOMIAL MODEL ON RIGIDITY AND
FLEXIBILITY OF ALL CONSECUTIVE ACT PAIRS

MODEL	GOODNESS OF FIT LIKELIHOOD (0.0 - 1.0)
AGE (2-3, 4-6, 7-9)	p = 0.0
SEX (MALE, FEMALE)	p = 0.0
TYPE OF REPETITION (PERSISTENCE, PERSEVERATION)	p = 0.0
AGE X TYPE OF REPETITION	p = .277*
SEX X TYPE OF REPETITION	p = 0.0

* ($p \geq .05$ represents a "good fit")

FIGURE 7

LABILITY AND STABILITY OF SET GOAL

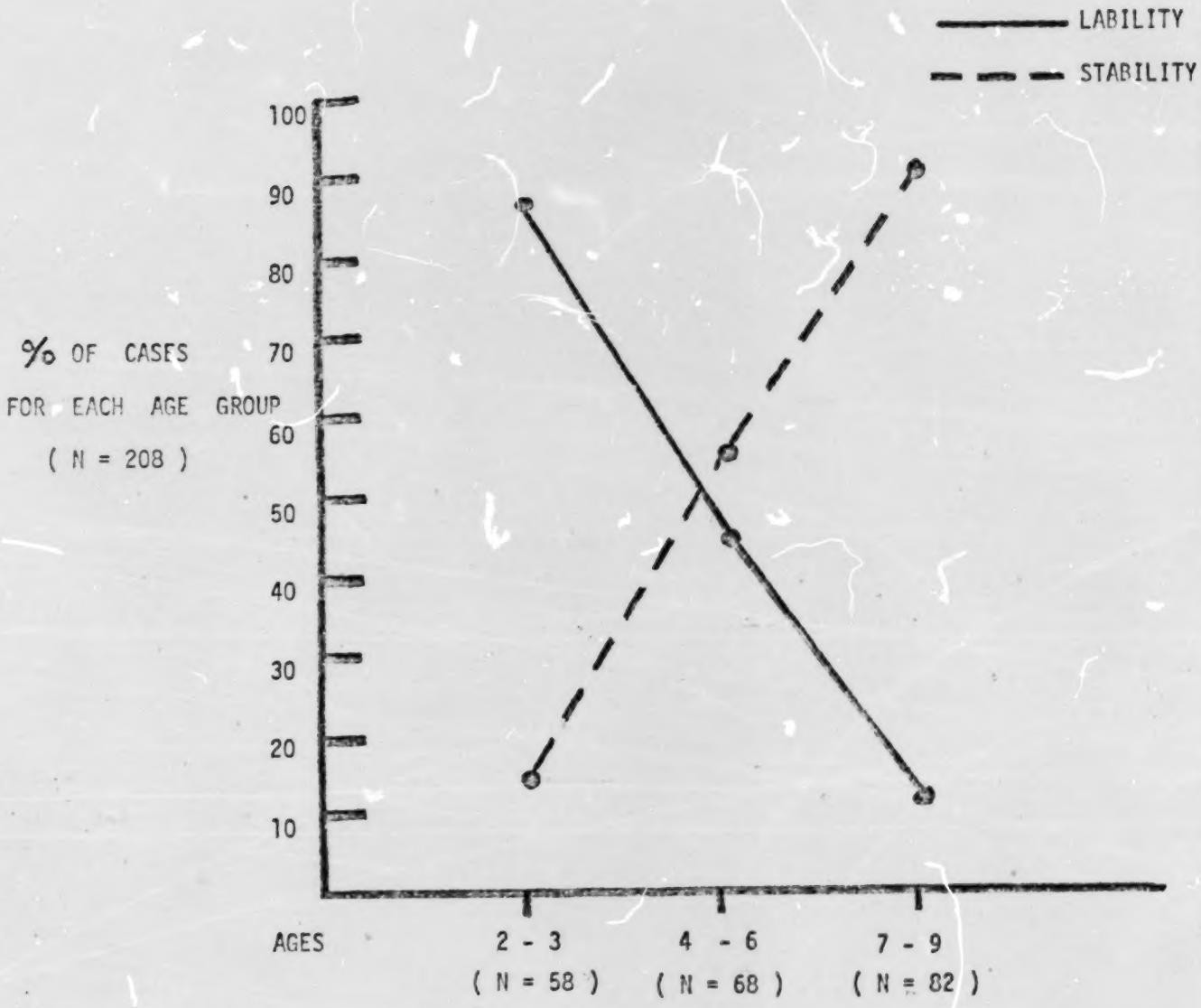

TABLE 4

TEST OF GOODNESS OF FIT
OF MULTINOMIAL MODEL ON ALL
SEQUENCE INVOLVING THE DISTRACTION
AND/OR INTERRUPTION OF THE ACTOR

MODEL	GOODNESS OF FIT LIKELIHOOD (0 - 1.0)
SEX (MALE, FEMALE)	p = 0.0
AGE (2-3, 4-6, 7-9)	p = 0.0
STABILITY - LABILITY	p = 0.0
AGE X STABILITY - LABILITY	p = .82*
SEX X STABILITY - LABILITY	p = 0.0
SEX X AGE X STABILITY - LABILITY	p = 0.0

* ($p \geq .05$ represents a "good fit")

FIGURE 3a

RESPONSES OF MALES AGE 2-9 YEARS TO NON-COMPLIANCE

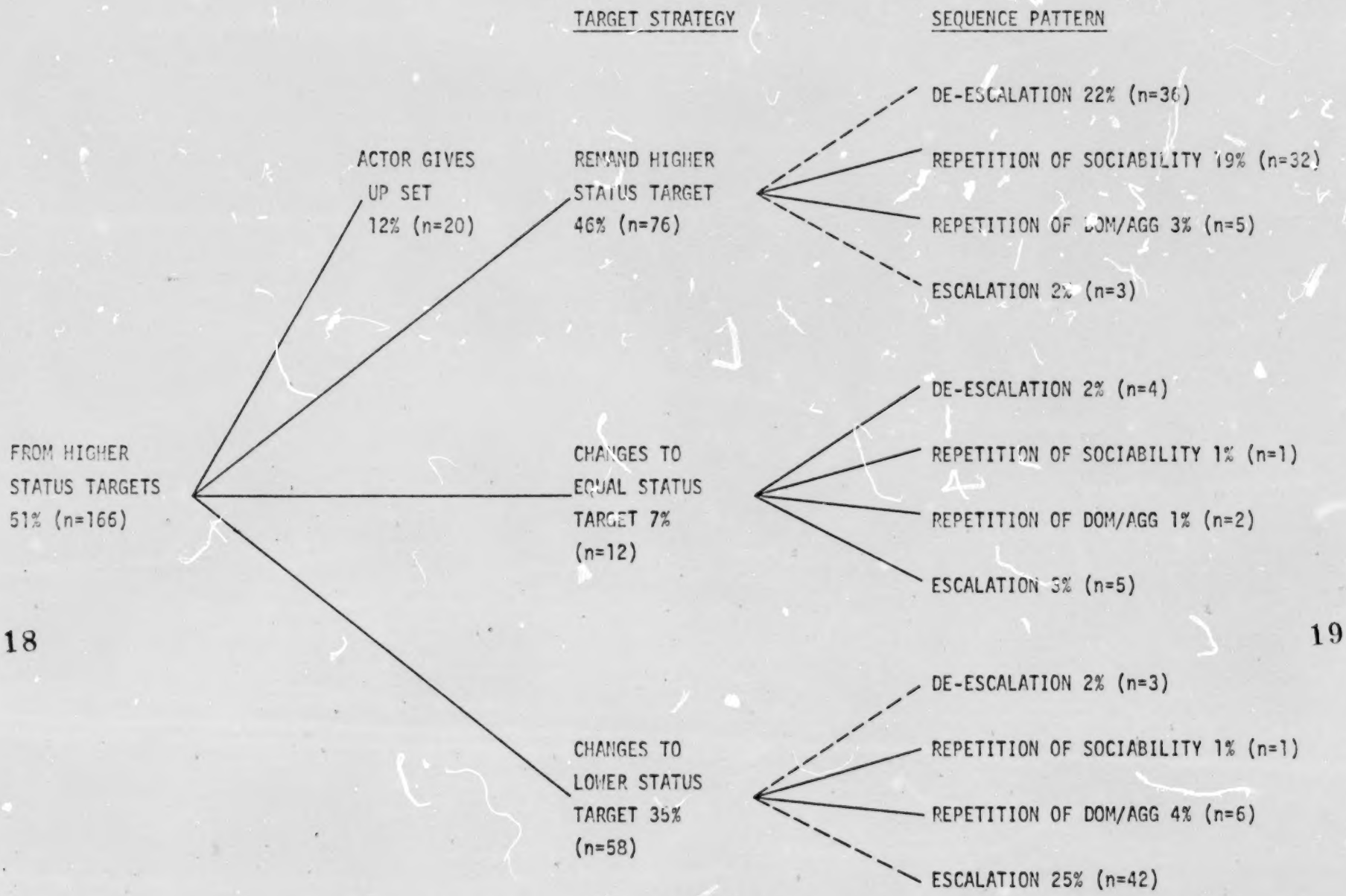
TARGET STRATEGY
SEQUENCE PATTERN
FROM HIGHER STATUS TARGETS 51% (n=166)
ACTOR GIVES UP SET 12% (n=20)
REMAND HIGHER STATUS TARGET 46% (n=76)
DE-ESCALATION 22% (n=36)
REPETITION OF SOCIABILITY 19% (n=32)
REPETITION OF DOM/AGG 3% (n=5)
ESCALATION 2% (n=3)
CHANGES TO EQUAL STATUS TARGET 7% (n=12)
DE-ESCALATION 2% (n=4)
REPETITION OF SOCIABILITY 1% (n=1)
REPETITION OF DOM/AGG 1% (n=2)
ESCALATION 3% (n=5)
CHANGES TO LOWER STATUS TARGET 35% (n=58)
DE-ESCALATION 2% (n=3)
REPETITION OF SOCIABILITY 1% (n=1)
REPETITION OF DOM/AGG 4% (n=6)
ESCALATION 25% (n=42)

FIGURE 5a

RESPONSES OF MALES AGE 2-9 YEARS TO NON-COMPLIANCE

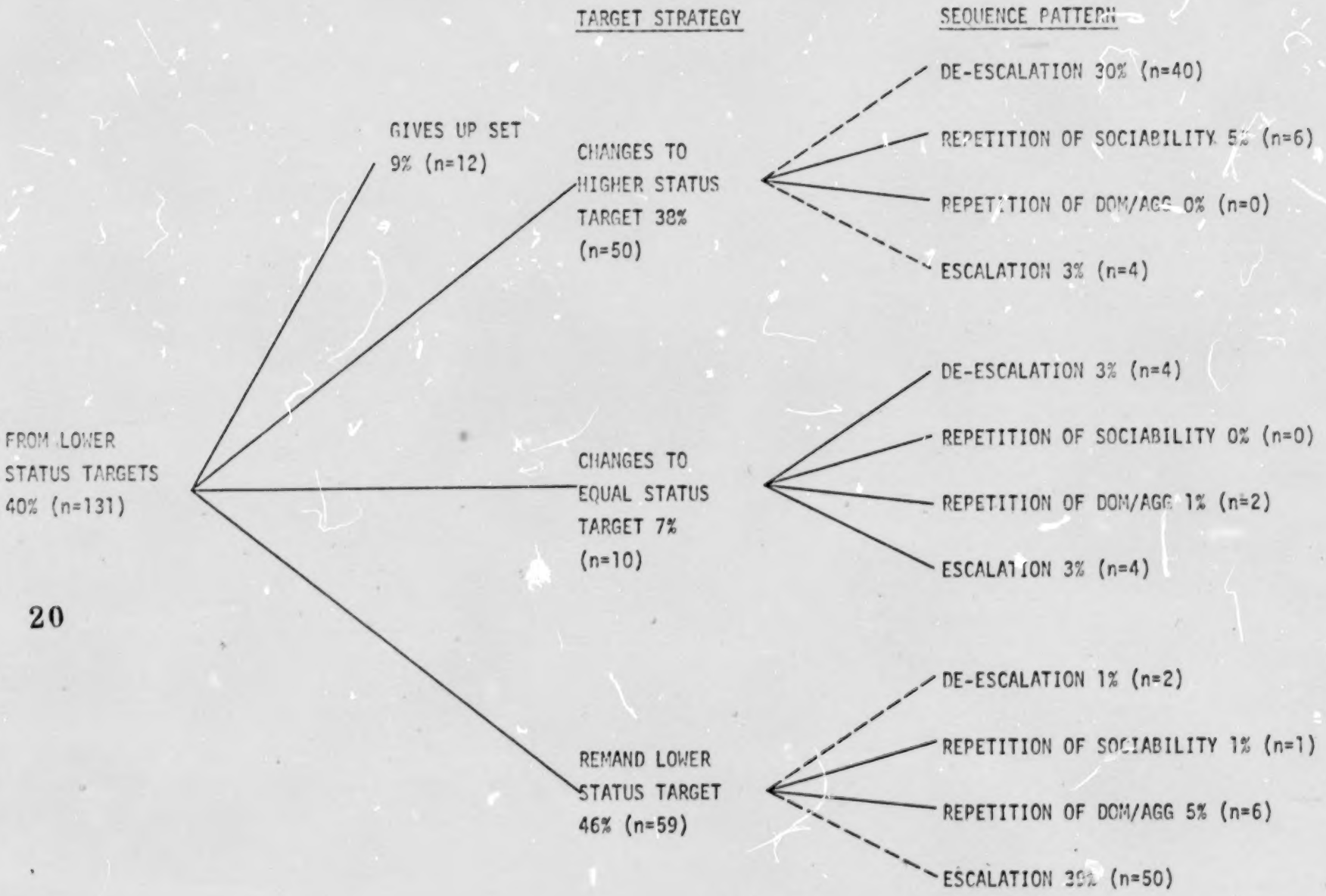
TARGET STRATEGY
SEQUENCE PATTERN
FROM LOWER STATUS TARGETS 40% (n=131)
GIVES UP SET 9% (n=12)
CHANGES TO HIGHER STATUS TARGET 38% (n=50)
CHANGES TO EQUAL STATUS TARGET 7% (n=10)
REMAND LOWER STATUS TARGET 46% (n=59)
DE-ESCALATION 30% (n=40)
REPETITION OF SOCIABILITY 5% (n=6)
REPETITION OF DOM/AGG 0% (n=0)
ESCALATION 3% (n=4)
DE-ESCALATION 3% (n=4)
REPETITION OF SOCIABILITY 0% (n=0)
REPETITION OF DOM/AGG 1% (n=2)
ESCALATION 3% (n=4)
DE-ESCALATION 1% (n=2)
REPETITION OF SOCIABILITY 1% (n=1)
REPETITION OF DOM/AGG 5% (n=6)
ESCALATION 39% (n=50)

TABLE 1

TEST OF GOODNESS OF FIT OF
MULTINOMIAL MODEL ON DE-ESCALATION
AND ESCALATION SEQUENCES WITH
REMAND OF TARGET

MODEL	GOODNESS OF FIT LIKELIHOOD (0 - 1.0)
SEX (MALE, FEMALE)	p = 0.0
STATUS OF TARGET (HI, EQ, LO)	p = 0.0
SEQUENCE PATTERN (DE-ESCALATION AND ESCALATION)	p = 0.0
STATUS OF TARGET X SEQUENCE PATTERN	p = .536*
CONTRAST 1 (HI + LO vs. EQ)	p = 0.0
CONTRAST 2 (HI vs. LO)	p = .978*
SEX X SEQUENCE PATTERN	p = 0.0
SEX X STATUS OF TARGET X SEQUENCE PATTERN	p = 0.0

* (p .05 represents a "good fit")

TABLE 2

TEST OF GOODNESS OF FIT OF
MULTINOMIAL MODEL ON DE-ESCALATION
AND ESCALATION SEQUENCES WITH
TARGET CHANGE

MODEL	GOODNESS OF FIT LIKELIHOOD (0 - 1.0)
SEX (MALE, FEMALE)	p = 0.0
TARGET CHANGE (HI - $\frac{EQ,}{LO}$ EQ - $\frac{HI,}{LO}$ LO - $\frac{HI,}{EQ}$)	p = 0.0
SEQUENCE PATTERN (DE-ESCALATION AND ESCALATION)	p = 0.0
TARGET CHANGE X SEQUENCE PATTERN	p = .302*
CONTRAST 1 (HI -- $\frac{EQ,}{LO}$ + LO -- $\frac{HI,}{EQ}$ vs. EQ -- $\frac{HI,}{LO}$)	p = 0.0
CONTRAST 2 (HI -- $\frac{EQ,}{LO}$ vs. LO -- $\frac{HI,}{EQ}$)	p = .902*
SEX X SEQUENCE PATTERN	p = 0.0
SEX X TARGET CHANGE X SEQUENCE PATTERN	p = 0.0

* ($p \geq .05$ represents a "good fit")

FIGURE 6

BEHAVIORAL STRATEGIES OF ALL ESCALATION SEQUENCES

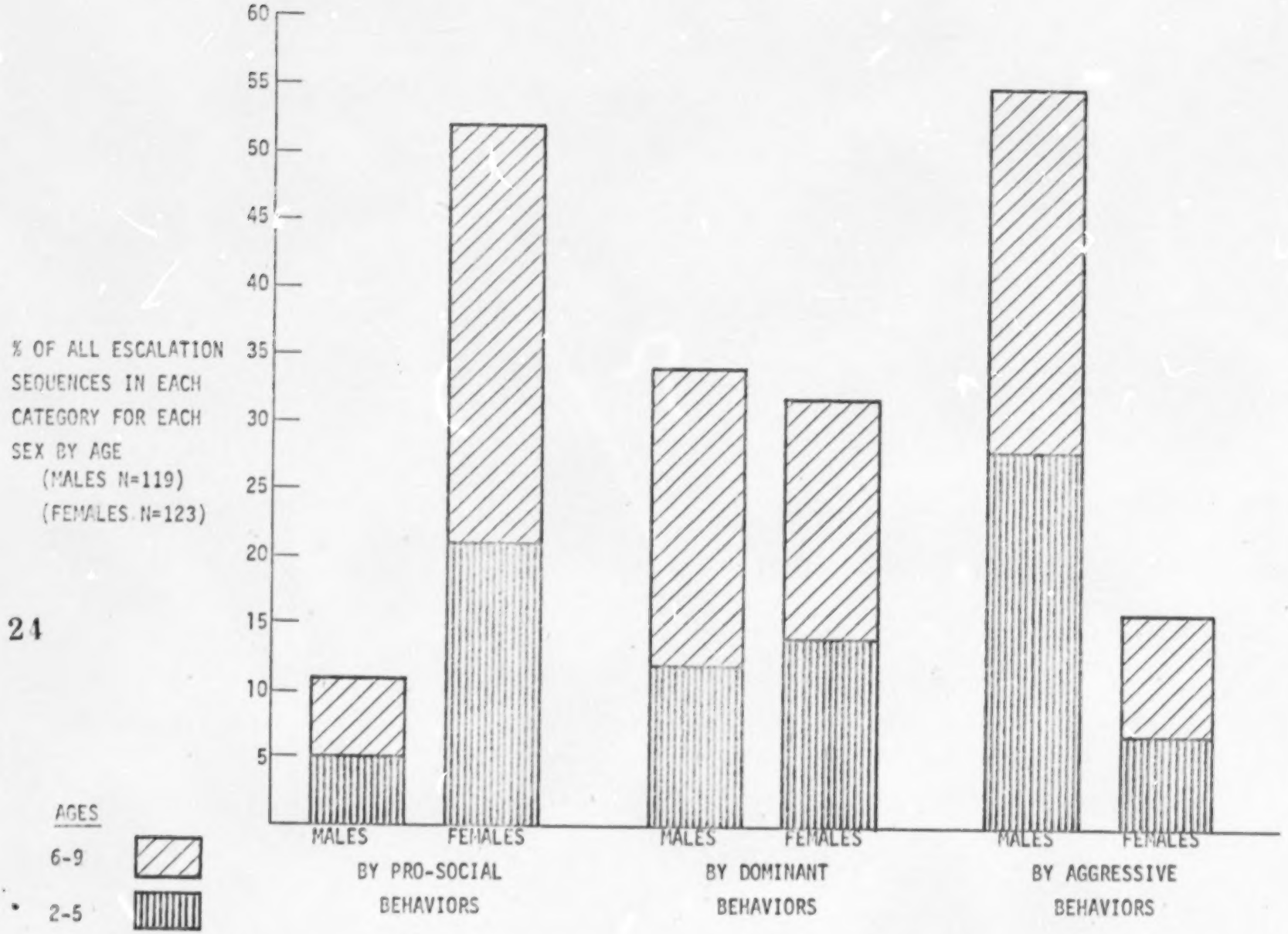

TABLE 3

TEST OF GOODNESS OF FIT OF
MULTINOMIAL MODEL ON ESCALATION
SEQUENCES WITH DIFFERING BEHAVIORAL
STRATEGIES

MODEL	GOODNESS OF FIT LIKELIHOOD (0 - 1.0)
SEX (MALE, FEMALE)	p = 0.0
BEHAVIORAL STRATEGY (PROSOC, DOM, AGGRESS)	p = 0.0
AGE (2-5, 6-9)	p = 0.0
SEX X BEHAVIORAL STRATEGY	p = .353*
AGE X BEHAVIORAL STRATEGY	p = 0.0
SEX X AGE X BEHAVIORAL STRATEGY	p = 0.0

* ($p \geq .05$ represents a "good fit")